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DEMOGRAPHIC CHANGES AND
REAL HOUSING PRICES IN CANADA

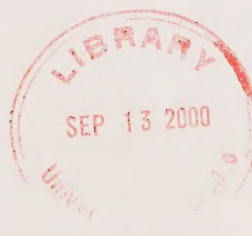
Introduction

With the aging of the baby-boom generation, the number of young households is falling in Canada. This study examines the contentions of the demographer David Foot¹, and of earlier work by Mankiw and Weil², that in such a population, the number of home buyers is bound to decrease, causing the prices of residential real estate to drop substantially. In addition to reviewing the relevant economic literature, the study constructs econometric models using Canadian national and provincial data and uses them to assess whether expected demographic changes in Canada are likely to trigger a pronounced downward trend in residential real estate prices.

Findings

The study begins by recalling that price is determined by supply and demand conditions and that supply increases whenever prices escalate significantly in response to demand pressures. Any large price changes should therefore tend to be short term, being dissipated once the housing stock has been able to adjust. It documents changes in real (i.e. inflation-adjusted) housing prices in Canada over the past 40 years, finding two periods of large increases (1973-75 and 1985-89) and two of sharp decreases (1980-82 and 1990-92). Since 1992, the average Multiple Listing Service (MLS) real housing sales price experienced an upward trend, but this seems to be the result of qualitative housing improvement. MLS data overestimate price increases because they incorporate no adjustment for increases in housing quality or size; adjusting for quality improvements and size increases would remove the upward trend.

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The study presents a detailed review of previous empirical studies on the relation between demographic changes and housing prices. It examines particularly the work of Mankiw and Weil which predicted that between 1990 and 2010 real housing prices would decrease by 47% because of ageing of the population (an expected increase in the number of households over age 40, and an expected decrease in the number of those under age 40), and a contention that housing consumption reaches a peak at age 40 and decreases thereafter. A series of subsequent articles, however, criticized Mankiw and Weil's prediction and methodology:

- their methodology is incomplete in such a way that the omission of certain variables and of one supply equation can explain the importance of the demographic variable;
- their result seems specific to the United States since the same demographic importance cannot be identified in other countries;
- the relationship they estimate between household age and housing demand is incorrect because the age effect and cohort effect are confused. Far from reaching a peak at age 40, housing consumption seems to remain high right up to about age 70. Ageing will therefore not reduce the housing demand.

The literature review found an absence of consensus on whether individual housing demand increases or decreases on average with age beyond 40 years. Against the view that demographics could make real estate prices collapse, other studies systematically conclude either that demographics will have no effect or, instead, that any price decrease would be temporary and of little importance, or yet again that the effect of demographics will be counterbalanced by an increase in real income.

Only two studies examined the impact of demographics using Canadian historical data. Both conclude that the demographic effect on housing prices is not statistically significant, but that fluctuations in real income and interest rates were important.

The Foot contention, widely echoed in magazines and newspapers, met a cool, even negative, reception from housing market analysts who recalled the importance of economic factors in determining prices. However, the literature review found that the scientific conclusions are not repeated in the popular press and books aimed at the general public.

To clarify the respective contribution of demographic and economic influences, the authors used Canadian data to estimate a structural econometric model of the housing market. The model contains a demand equation and a housing stock adjustment equation. This empirical model is used to evaluate the impact of demographics and economic conditions on the change in real housing prices during the 1956-1997 period. Three demographic growth scenarios and two economic growth scenarios are used with the model to formulate a set of 6 housing price and housing stock outlooks for the 1998-2016 period.

The resulting conclusions are that real housing prices are not likely to decrease in Canada over the coming years.

The main factor that determines the long-term change in the real housing price is the real income of the adult population. Of the various possible demographic measurements, only the growth in the population aged 25-54 has a statistically significant impact on the real housing price. Based on the results of the econometric modeling, the passage of the baby-boom generation raised the real price by 25% between 1965 and 1975, the level at which it stayed until 1989. It then decreased 20% between 1989 and 1997 when a smaller generation followed.

The demographic impact was therefore considerable. However, the economic fluctuations, and in particular the 1980-82 recession and the economic decline of the 1990s had an even greater influence.

The greatest part of the downward demographic pressures occurred during the 1990s. What remains to be absorbed will occur mostly between 2002 and 2005 when the growth of the population aged 25-54 will slow more rapidly. However, the upward trend resulting from the projected increase in real income is expected to dominate the demographic impact, especially after 2005.

If a correction is made to prices for the probable quality/size bias, the contention of some real price decrease becomes plausible in the scenario with weak economic growth and low fertility and low levels of immigration. Even under such a scenario, the decrease would be small. Overall, the authors conclude that it is more plausible that there will be a modest rise in prices.

The provincial model structure was similar to that of the Canadian model. However, certain important coefficients vary from one province to another. The effect of real income on housing prices appeared greater in Ontario and particularly weak in the Atlantic Provinces. Manitoba exhibited a very slow but statistically significant reaction of price to income.

The contention of declining prices becomes conceivable only in the provinces that experience population shrinkage in key demographic age groups in the course of the next 20 years. Prices were projected to decline in the Atlantic provinces and Saskatchewan, because the population aged 25-54 is expected to decline earlier than in the other provinces and more sharply. However, by 2016, the model forecasts moderate decreases of about 10% as compared with current prices.

In all of the other provinces, a real price which is higher than at present is projected. The price growth will be especially large in the provinces with greater demographic growth: Ontario, Alberta and British Columbia. Ontario, which will experience more sustained demographic growth than the other provinces, should benefit from the strongest price increase.

The study concludes that even if it is true that demographics may exert downward pressure on real estate prices, such impact will probably be dominant only in certain regions, depending even there on their rates of growth in real income. In the other regions, the real price should have a tendency to rise.

1. See *Boom, Bust & Echo: How to Profit from the Coming Demographic Shift and Boom, Bust & Echo 2000: Profiting from the Demographic Shift in the New Millennium*, both by David K. Foot in collaboration with Daniel Stoffman.
2. See "The Baby Boom, the Baby Bust and the Housing Market", *Journal of Regional Science and Urban Economics* 19, pp. 235-258 and "The Baby Boom, the Baby Bust, and the Housing Market: A Reply to Our Critics", *Journal of Regional Science and Urban Economics*, 21 (4), pp. 573-579, both by Mankiw, N. G. and D. N. Weil.

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Research Report: Demographic Changes and Real Housing Prices in Canada

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A full report on this project is available from the Canadian Housing Information Centre at the address below.

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